



Confidentiality Requested:

Yes  No

KANSAS CORPORATION COMMISSION 1120032  
OIL & GAS CONSERVATION DIVISION

Form ACO-1

August 2013

Form must be Typed  
Form must be Signed  
All blanks must be Filled

WELL COMPLETION FORM  
WELL HISTORY - DESCRIPTION OF WELL & LEASE

OPERATOR: License # \_\_\_\_\_

Name: \_\_\_\_\_

Address 1: \_\_\_\_\_

Address 2: \_\_\_\_\_

City: \_\_\_\_\_ State: \_\_\_\_\_ Zip: \_\_\_\_\_ + \_\_\_\_\_

Contact Person: \_\_\_\_\_

Phone: ( \_\_\_\_\_ ) \_\_\_\_\_

CONTRACTOR: License # \_\_\_\_\_

Name: \_\_\_\_\_

Wellsite Geologist: \_\_\_\_\_

Purchaser: \_\_\_\_\_

Designate Type of Completion:

- New Well       Re-Entry       Workover
- Oil       WSW       SWD       SIOW
- Gas       D&A       ENHR       SIGW
- OG       GSW       Temp. Abd.
- CM (Coal Bed Methane)
- Cathodic       Other (Core, Expl., etc.): \_\_\_\_\_

If Workover/Re-entry: Old Well Info as follows:

Operator: \_\_\_\_\_

Well Name: \_\_\_\_\_

Original Comp. Date: \_\_\_\_\_ Original Total Depth: \_\_\_\_\_

- Deepening       Re-perf.       Conv. to ENHR       Conv. to SWD
- Plug Back       Conv. to GSW       Conv. to Producer
- Commingled      Permit #: \_\_\_\_\_
- Dual Completion      Permit #: \_\_\_\_\_
- SWD      Permit #: \_\_\_\_\_
- ENHR      Permit #: \_\_\_\_\_
- GSW      Permit #: \_\_\_\_\_

Spud Date or Recompletion Date	Date Reached TD	Completion Date or Recompletion Date
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API No. 15 - \_\_\_\_\_

Spot Description: \_\_\_\_\_

\_\_\_\_\_ - \_\_\_\_\_ - \_\_\_\_\_ Sec. \_\_\_\_\_ Twp. \_\_\_\_\_ S. R. \_\_\_\_\_  East  West

\_\_\_\_\_ Feet from  North /  South Line of Section

\_\_\_\_\_ Feet from  East /  West Line of Section

Footages Calculated from Nearest Outside Section Corner:

- NE       NW       SE       SW

GPS Location: Lat: \_\_\_\_\_, Long: \_\_\_\_\_  
(e.g. xx.xxxxx) (e.g. -xxx.xxxxx)

Datum:  NAD27       NAD83       WGS84

County: \_\_\_\_\_

Lease Name: \_\_\_\_\_ Well #: \_\_\_\_\_

Field Name: \_\_\_\_\_

Producing Formation: \_\_\_\_\_

Elevation: Ground: \_\_\_\_\_ Kelly Bushing: \_\_\_\_\_

Total Vertical Depth: \_\_\_\_\_ Plug Back Total Depth: \_\_\_\_\_

Amount of Surface Pipe Set and Cemented at: \_\_\_\_\_ Feet

Multiple Stage Cementing Collar Used?  Yes  No

If yes, show depth set: \_\_\_\_\_ Feet

If Alternate II completion, cement circulated from: \_\_\_\_\_

feet depth to: \_\_\_\_\_ w/ \_\_\_\_\_ sx cmt.

Drilling Fluid Management Plan

(Data must be collected from the Reserve Pit)

Chloride content: \_\_\_\_\_ ppm Fluid volume: \_\_\_\_\_ bbls

Dewatering method used: \_\_\_\_\_

Location of fluid disposal if hauled offsite:

Operator Name: \_\_\_\_\_

Lease Name: \_\_\_\_\_ License #: \_\_\_\_\_

Quarter \_\_\_\_\_ Sec. \_\_\_\_\_ Twp. \_\_\_\_\_ S. R. \_\_\_\_\_  East  West

County: \_\_\_\_\_ Permit #: \_\_\_\_\_

AFFIDAVIT

I am the affiant and I hereby certify that all requirements of the statutes, rules and regulations promulgated to regulate the oil and gas industry have been fully complied with and the statements herein are complete and correct to the best of my knowledge.

Submitted Electronically

KCC Office Use ONLY

- Confidentiality Requested  
Date: \_\_\_\_\_
- Confidential Release Date: \_\_\_\_\_
- Wireline Log Received
- Geologist Report Received
- UIC Distribution
- ALT  I  II  III Approved by: \_\_\_\_\_ Date: \_\_\_\_\_



1120032

Operator Name: \_\_\_\_\_ Lease Name: \_\_\_\_\_ Well #: \_\_\_\_\_

Sec. \_\_\_\_\_ Twp. \_\_\_\_\_ S. R. \_\_\_\_\_  East  West County: \_\_\_\_\_

**INSTRUCTIONS:** Show important tops of formations penetrated. Detail all cores. Report all final copies of drill stems tests giving interval tested, time tool open and closed, flowing and shut-in pressures, whether shut-in pressure reached static level, hydrostatic pressures, bottom hole temperature, fluid recovery, and flow rates if gas to surface test, along with final chart(s). Attach extra sheet if more space is needed.

Final Radioactivity Log, Final Logs run to obtain Geophysical Data and Final Electric Logs must be emailed to kcc-well-logs@kcc.ks.gov. Digital electronic log files must be submitted in LAS version 2.0 or newer AND an image file (TIFF or PDF).

Drill Stem Tests Taken <input type="checkbox"/> Yes <input type="checkbox"/> No <i>(Attach Additional Sheets)</i>  Samples Sent to Geological Survey <input type="checkbox"/> Yes <input type="checkbox"/> No  Cores Taken <input type="checkbox"/> Yes <input type="checkbox"/> No Electric Log Run <input type="checkbox"/> Yes <input type="checkbox"/> No  List All E. Logs Run: _____	<input type="checkbox"/> Log Formation (Top), Depth and Datum <input type="checkbox"/> Sample  Name Top Datum
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CASING RECORD <input type="checkbox"/> New <input type="checkbox"/> Used							
Report all strings set-conductor, surface, intermediate, production, etc.							
Purpose of String	Size Hole Drilled	Size Casing Set (In O.D.)	Weight Lbs. / Ft.	Setting Depth	Type of Cement	# Sacks Used	Type and Percent Additives

ADDITIONAL CEMENTING / SQUEEZE RECORD				
Purpose:	Depth Top Bottom	Type of Cement	# Sacks Used	Type and Percent Additives
<input type="checkbox"/> Perforate <input type="checkbox"/> Protect Casing <input type="checkbox"/> Plug Back TD <input type="checkbox"/> Plug Off Zone				

Did you perform a hydraulic fracturing treatment on this well?  Yes  No *(If No, skip questions 2 and 3)*

Does the volume of the total base fluid of the hydraulic fracturing treatment exceed 350,000 gallons?  Yes  No *(If No, skip question 3)*

Was the hydraulic fracturing treatment information submitted to the chemical disclosure registry?  Yes  No *(If No, fill out Page Three of the ACO-1)*

Shots Per Foot	PERFORATION RECORD - Bridge Plugs Set/Type Specify Footage of Each Interval Perforated	Acid, Fracture, Shot, Cement Squeeze Record <i>(Amount and Kind of Material Used)</i>	Depth

TUBING RECORD:	Size: _____ Set At: _____ Packer At: _____	Liner Run: <input type="checkbox"/> Yes <input type="checkbox"/> No
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Date of First, Resumed Production, SWD or ENHR. _____	Producing Method: <input type="checkbox"/> Flowing <input type="checkbox"/> Pumping <input type="checkbox"/> Gas Lift <input type="checkbox"/> Other <i>(Explain)</i> _____
---	--

Estimated Production Per 24 Hours	Oil Bbls.	Gas Mcf	Water Bbls.	Gas-Oil Ratio	Gravity

<b>DISPOSITION OF GAS:</b> <input type="checkbox"/> Vented <input type="checkbox"/> Sold <input type="checkbox"/> Used on Lease <i>(If vented, Submit ACO-18.)</i>	<b>METHOD OF COMPLETION:</b> <input type="checkbox"/> Open Hole <input type="checkbox"/> Perf. <input type="checkbox"/> Dually Comp. <input type="checkbox"/> Commingled <i>(Submit ACO-5)</i> <input type="checkbox"/> Other <i>(Specify)</i> _____ <i>(Submit ACO-4)</i>	<b>PRODUCTION INTERVAL:</b> _____ _____
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**OPERATOR**

Company: HERTEL OIL COMPANY, LLC  
 Address: 704 E 12TH STREET  
 HAYS, KANSAS 67601-3440

Contact Geologist: DAVE HERTEL  
 Contact Phone Nbr: 785-628-2445  
 Well Name: WERTH-PFANNENSTIEL UNIT # 1  
 Location: NE NE SW SE Sec 14-15s-19w      API: 15-051-26,436-00-00  
 Pool: WILDCAT      Field: UNNAMED  
 State: KANSAS      Country: USA

**Scale 1:240 Imperial**

Well Name: WERTH-PFANNENSTIEL UNIT # 1  
 Surface Location: NE NE SW SE Sec 14-15s-19w  
 Bottom Location:  
 API: 15-051-26,436-00-00  
 License Number: 33625  
 Spud Date: 12/8/2012      Time: 2:00 PM  
 Region: ELLIS COUNTY  
 Drilling Completed: 12/14/2012      Time: 1:46 PM  
 Surface Coordinates: 1150' FSL & 1505' FEL  
 Bottom Hole Coordinates:  
 Ground Elevation: 1995.00ft  
 K.B. Elevation: 2003.00ft  
 Logged Interval: 2900.00ft      To: 3700.00ft  
 Total Depth: 3700.00ft  
 Formation: LANSING-KANSAS CITY  
 Drilling Fluid Type: CHEMICAL/FRESH WATER GEL

**SURFACE CO-ORDINATES**

Well Type: Vertical  
 Longitude:      Latitude:  
 N/S Co-ord: 1150' FSL  
 E/W Co-ord: 1505' FEL

**LOGGED BY**

Company: SOLUTIONS CONSULTING  
 Address: 108 W 35TH  
 HAYS, KS 67601

Phone Nbr: (785) 639-1337  
 Logged By: Geologist      Name: HERB DEINES

**CONTRACTOR**

Contractor: DISCOVERY DRILLING INC.  
 Rig #: 4  
 Rig Type: MUD ROTARY  
 Spud Date: 12/8/2012      Time: 2:00 PM  
 TD Date: 12/14/2012      Time: 1:46 PM  
 Rig Release: 12/15/2012      Time: 6:00 AM

**ELEVATIONS**

K.B. Elevation: 2003.00ft      Ground Elevation: 1995.00ft  
 K.B. to Ground: 8.00ft

**NOTES**

RECOMMENDATION TO RUN 5 1/2 " PRODUCTION CASING TO FURTHER TEST AND DEVELOP

OPEN HOLE LOGGING BY NABORS COMPLETION AND PRODUCTION SERVICES CO: DUAL INDUCTION LOG, COMPENSATED DENSITY/NEUTRON LOG, MICRO LOG

DRILL STEM TESTING BY TRILOBITE TESTING INC: THREE (3) CONVENTIONAL TESTS

**FORMATION TOPS SUMMARY AND CHRONOLOGY OF DAILY ACTIVITY**


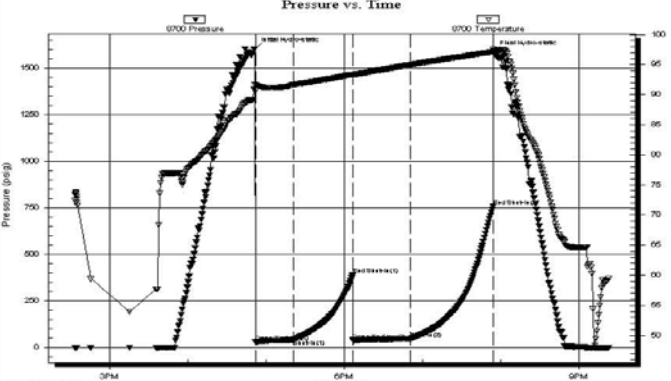
**WERTH-PFANNENSTIEL UNIT # 1  
1150' FSL & 1505' FEL, SE/4  
Sec.14-15s-19w  
1995' GL 2003' KB**

<u>FORMATION</u>	<u>SAMPLE TOPS</u>	<u>LOG TOPS</u>
Anhydrite	1189+ 814	1194+ 809
B-Anhydrite	1228+ 775	1229+ 774
Topeka	2990- 987	2991- 988
Heebner Shale	3254-1251	3253-1250
Toronto	3275-1272	3272-1269
LKC	3298-1295	3297-1294
BKC	3545-1542	3545-1542
Marmaton		3596-1593
Conglomerate Sand		3610-1607
Arbuckle		3628-1625
RTD	3700-1697	
LTD		3701-1698

**CHRONOLOGY OF DAILY ACTIVITY**

- 12-08-12 RU, spud 3:00 PM
- 12-09-12 950', drilling surface hole, set 8 5/8" to 1189' w/ 450 sxs Common, 2%gel,3%CC, plug down 6:15 PM, WOC 12 hrs, slope ¾ degree
- 12-10-12 1210', drill plug
- 12-11-12 2490', drilling, displace 2752'-2809'
- 12-12-12 3285', drilling, DST # 1 3286' to 3340' "A-C" LKC, TIWB, CCH
- 12-13-12 3490', CFS, DST # 2 3420' to 3490' "H-J" LKC, TIWB, CCH
- 12-14-12 3628', DST # 3 3597'-3628' Conglomerate Sand, TIWB, CCH, RTD 3700' @1:46PM, CCH, TOWB, logs, TIWB, CCH, lay down drill pipe
- 12-15-12 3700', run production casing, cement bottom stage, RD

### DST # 1 "A-C" LKC TEST SUMMARY

 <b>TRILOBITE TESTING, INC.</b>	<b>DRILL STEM TEST REPORT</b>																																						
	Hertel Oil Co LLC 704 E. 12TH St. Hays KS. 67601 ATTN: Dave Hertel	<b>14-15s-19w Ellis KS</b> <b>Werth-Pfannenstiel 1</b> Job Ticket: 51564 <b>DST#: 1</b> Test Start: 2012.12.12 @ 14:33:00																																					
<b>GENERAL INFORMATION:</b>																																							
Formation: <b>LKC "A-C"</b> Deviated: No Whipstock: ft (KB) Time Tool Opened: 16:51:30 Time Test Ended: 21:23:00		Test Type: Conventional Bottom Hole (Initial) Tester: Cody Bloedorn Unit No: 42																																					
Interval: <b>3286.00 ft (KB) To 3340.00 ft (KB) (TVD)</b> Total Depth: 3340.00 ft (KB) (TVD) Hole Diameter: 7.88 inches Hole Condition: Fair		Reference Elevations: 2000.00 ft (KB) 1994.00 ft (CF) KB to GR/CF: 6.00 ft																																					
<b>Serial #: 8700      Outside</b> Press@RunDepth: 46.59 psig @ 3325.00 ft (KB) Start Date: 2012.12.12      End Date: 2012.12.12 Start Time: 14:33:05      End Time: 21:22:59		Capacity: 8000.00 psig Last Calib.: 2012.12.12 Time On Btm: 2012.12.12 @ 16:51:15 Time Off Btm: 2012.12.12 @ 19:54:15																																					
<b>TEST COMMENT:</b> 30 - IF- 5 3/4" blow 45 - IS- Surface blow back 45 - FF- B.O.B. in 5 Minutes 60 - FSI- No blow back																																							
<b>Pressure vs. Time</b>		<b>PRESSURE SUMMARY</b>																																					
		<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Time (Min.)</th> <th>Pressure (psig)</th> <th>Temp (deg F)</th> <th>Annotation</th> </tr> </thead> <tbody> <tr><td>0</td><td>1604.47</td><td>91.72</td><td>Initial Hydro-static</td></tr> <tr><td>1</td><td>28.44</td><td>90.72</td><td>Open To Flow (1)</td></tr> <tr><td>30</td><td>41.11</td><td>91.67</td><td>Shut-In(1)</td></tr> <tr><td>75</td><td>393.02</td><td>93.40</td><td>End Shut-In(1)</td></tr> <tr><td>76</td><td>39.28</td><td>93.27</td><td>Open To Flow (2)</td></tr> <tr><td>120</td><td>46.59</td><td>94.96</td><td>Shut-In(2)</td></tr> <tr><td>183</td><td>757.61</td><td>97.15</td><td>End Shut-In(2)</td></tr> <tr><td>183</td><td>1589.02</td><td>97.65</td><td>Final Hydro-static</td></tr> </tbody> </table>		Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation	0	1604.47	91.72	Initial Hydro-static	1	28.44	90.72	Open To Flow (1)	30	41.11	91.67	Shut-In(1)	75	393.02	93.40	End Shut-In(1)	76	39.28	93.27	Open To Flow (2)	120	46.59	94.96	Shut-In(2)	183	757.61	97.15	End Shut-In(2)	183	1589.02	97.65	Final Hydro-static
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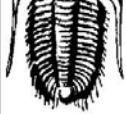
Trilobite Testing, Inc

Ref. No: 51564

Printed: 2012.12.13 @ 08:12:56

### DST # 2 "H - J" LKC TEST SUMMARY

 <b>TRILOBITE TESTING, INC.</b>	<b>DRILL STEM TEST REPORT</b>		
	Hertel Oil Co LLC	<b>14-15s-19w Ellis KS</b>	



TESTING, INC.

704 E. 12TH St.  
Hays KS, 67601

ATTN: Dave Hertel

Werth-Pfannenstiel 1

Job Ticket: 51565

DST#: 2

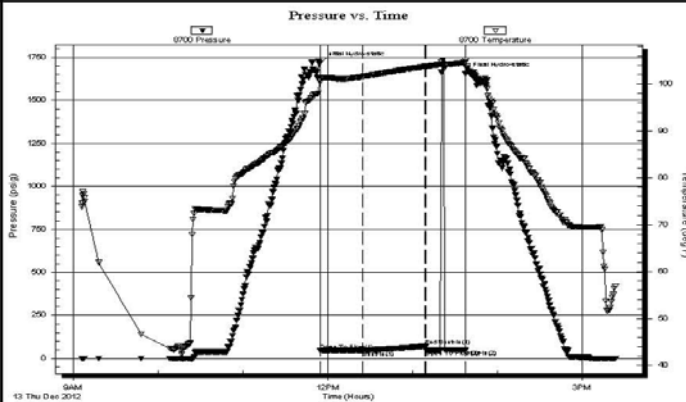
Test Start: 2012.12.13 @ 09:06:00

GENERAL INFORMATION:

Formation: **LKC "H,I,J"**  
 Deviated: No Whipstock: ft (KB)  
 Test Type: Conventional Bottom Hole (Reset)  
 Time Tool Opened: 11:54:30  
 Tester: Cody Bloedorn  
 Time Test Ended: 15:23:45  
 Unit No: 42  
 Interval: **3420.00 ft (KB) To 3490.00 ft (KB) (TVD)**  
 Total Depth: 3490.00 ft (KB) (TVD)  
 Reference Elevations: 2000.00 ft (KB)  
 Hole Diameter: 7.88 inches Hole Condition: Fair  
 KB to GR/CF: 6.00 ft  
 1994.00 ft (CF)

Serial #: **8700** Outside  
 Press@RunDepth: 46.79 psig @ 3487.00 ft (KB) Capacity: 8000.00 psig  
 Start Date: 2012.12.13 End Date: 2012.12.13  
 Start Time: 09:06:05 End Time: 15:23:44  
 Last Calib.: 2012.12.13  
 Time On Btm: 2012.12.13 @ 11:54:30  
 Time Off Btm: 2012.12.13 @ 13:37:30

TEST COMMENT: 30 - IF- 1/4" blow , dying back  
 45 - IS- No blow back  
 20 - FF- No blow , waited 10 Min., flushed tool, weak surface blow in 10 Min. pulled tool.



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1718.06	100.91	Initial Hydro-static
1	44.85	100.62	Open To Flow (1)
30	46.79	101.55	Shut-In(1)
75	70.70	103.74	End Shut-In(1)
75	47.01	103.76	Open To Flow (2)
103	47.04	104.64	Shut-In(2)
103	1656.20	105.20	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
10.00	Mud with spots of oil, 100%M	0.05

Gas Rates

Choke (inches)	Pressure (psig)	Gas Rate (Mcf/d)

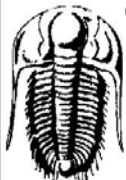
\* Recovery from multiple tests

Trilobite Testing, Inc

Ref. No: 51565

Printed: 2012.12.13 @ 15:44:17

DST # 3 CONGLOMERATE SAND TEST SUMMARY



TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

Hertel Oil Co LLC

14-15s-19w Ellis KS

704 E. 12TH St.  
Hays KS, 67601

Werth-Pfannenstiel 1

ATTN: Dave Hertel

Job Ticket: 51566

DST#: 3

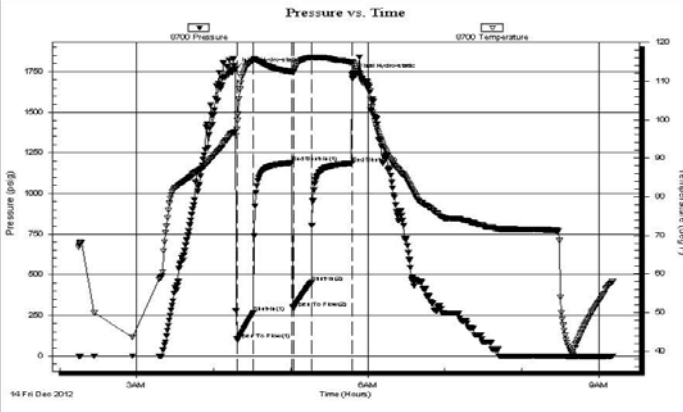
Test Start: 2012.12.14 @ 02:15:00

GENERAL INFORMATION:

Formation: **Cong.**  
 Deviated: No Whipstock: ft (KB)  
 Test Type: Conventional Bottom Hole (Reset)  
 Time Tool Opened: 04:18:30  
 Tester: Cody Bloedorn  
 Time Test Ended: 09:10:30  
 Unit No: 42  
 Interval: **3597.00 ft (KB) To 3628.00 ft (KB) (TVD)**  
 Total Depth: 3628.00 ft (KB) (TVD)  
 Reference Elevations: 2000.00 ft (KB)  
 Hole Diameter: 7.88 inches Hole Condition: Fair  
 KB to GR/CF: 6.00 ft  
 1994.00 ft (CF)

**Serial #: 8700**  
**Outside**  
 Press@RunDepth: 451.77 psig @ 3600.00 ft (KB) Capacity: 8000.00 psig  
 Start Date: 2012.12.14 End Date: 2012.12.14 Last Calib.: 2012.12.14  
 Start Time: 02:15:05 End Time: 09:10:29 Time On Btm: 2012.12.14 @ 04:17:00  
 Time Off Btm: 2012.12.14 @ 05:47:45

**TEST COMMENT:** 15 - IF- B.O.B. in 1 Minute  
 30 - IS- Surface blow back  
 15 - FF- B.O.B. in 1 Minute  
 30 - FS- No blow back



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1766.52	96.81	Initial Hydro-static
2	98.08	99.84	Open To Flow (1)
14	266.42	115.45	Shut-In(1)
44	1189.02	112.42	End Shut-In(1)
45	294.35	112.33	Open To Flow (2)
59	451.77	116.12	Shut-In(2)
91	1185.67	114.82	End Shut-In(2)
91	1731.40	115.05	Final Hydro-static

Length (ft)	Description	Volume (bbl)
186.00	OW, 2%O, 98%WV	2.33
124.00	OW, 40%O, 60%W	1.74
434.00	OCMV, 10%M, 20%O, 70%WV	6.09
217.00	GSOCVM, 10%G, 10%O, 20%W, 60%M	3.04

	Choke (inches)	Pressure (psig)	Gas Rate (Mcf/d)

\* Recovery from multiple tests  
 Trilobite Testing, Inc Ref. No: 51566 Printed: 2012.12.14 @ 09:52:12

**ROCK TYPES**

Dolprim	shale, grn	shale, red	Dol Lime
Lmst fw<7	shale, gry	Shcol	Lscong1
Lmst fw>7	Carbon Sh	Ss	

**ACCESSORIES**

<b>MINERAL</b>	<b>FOSSIL</b>
▲ Chert, dark	○ Oolite
P Pyrite	⊕ Oomoldic

**OTHER SYMBOLS**

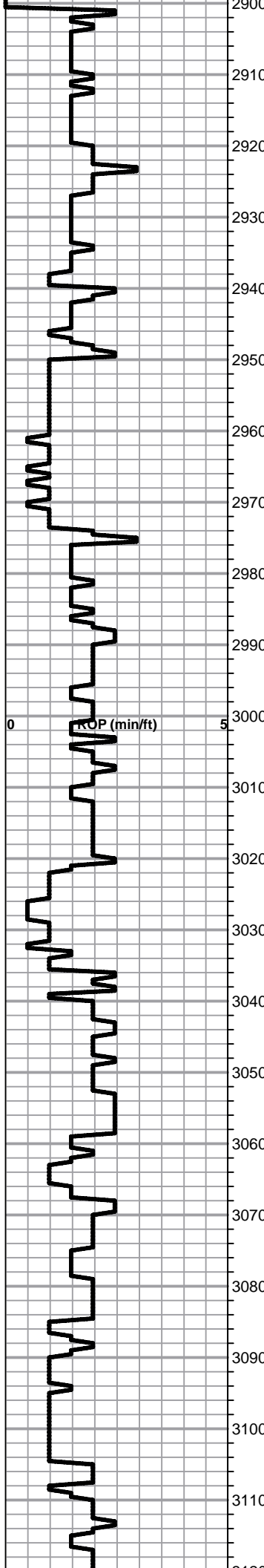
**DST**

DST Int
DST alt
Core

Printed by GEOstrip VC Striplog version 4.0.7.0 (www.grsi.ca)

Curve Track #1	Depth   Intervals	DST	Lithology	Oil Show	Geological Descriptions
ROP (min/ft)	Cored Interval DST Interval				
1:240 Imperial					
ROP (min/ft)					
1:240 Imperial					

BEGIN 1' DRILL TIME FROM 2900' TO RTD 8.50" SURFACE CASING SET



ROP (min/ft)

BEGIN 10' WET AND DRY SAMPLES FROM 2950' TO RTD

8 5/8" SURFACE CASING SET TO 1189' W/ 450 SXS COMMON, 2%GEL, 3%CC

**ANHYDRITE TOP 1194+809**  
**ANHYDRITE BASE 1229+774**

Lime, med brn, fnxln, fusulinids

Lime, lt-dark brn, fnxln, fossiliferous  
 Shale, med gray, soft

Shale, lt-med gray, soft blocky grading into soft mud clumps

Lime, lt brn, fnxln  
 Shale, lt-med gray, soft

**TOPEKA 2991-988**

Lime, lt-med brn, fnxln-granular, chalky matrix, scattered fossils

Lime, mix of lt-dark brn mix, fnxln, soft on crush, slight chalk

Lime, lt brn-lt grayish brn, fnxln-granular, chalky matrix with bedded chalk in part

○ Lime, lt brn-lt gray, fnxln-granular, sticky chalk clumps in part  
 Lime, lt brn, granular with fine interxln porosity, specks of fresh oil on break with very lite odor. likely thin zone near top of porosity

Lime, lt-med brn-grayish brn, fnxln with thin fossil beds near formation boundaries

Lime, lt brn-lt grayish brn, fnxln, soft on crush, granular with lt chalky matrix.

Lime, lt-med brn-grayish brn, granular, slightly fossiliferous, chalky matrix in part

Lime, lt-med brn, fnxln-granular, slightly fossiliferous, chalky matrix in part with sticky clumps of chalk

Lime, lt-med brn-grayish brn, granular with chalky matrix with sticky clumps of chalk, slightly fossiliferous

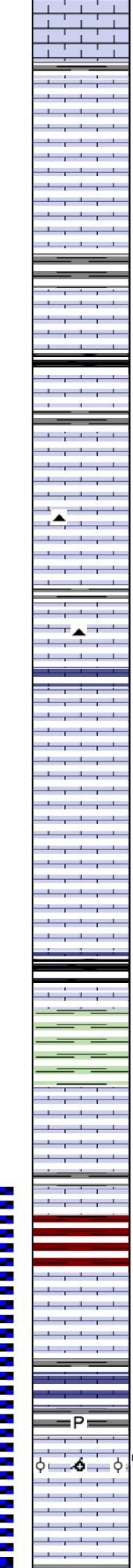
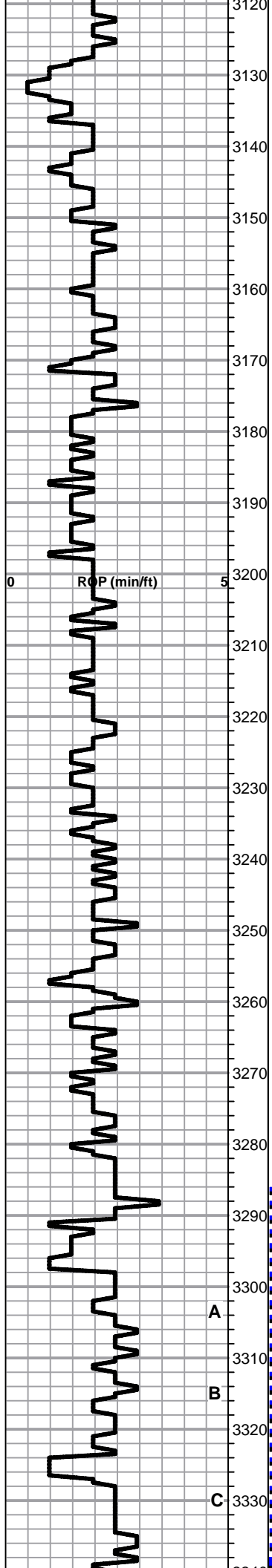
Lime, lt brn-tan, granular with chalky matrix, sticky clumps of chalk, slightly fossiliferous

Lime, lt-med brn, granular, chalky matrix, w sticky clumps of chalk

Shale, black carbonaceous

Lime, lt-med brn-gray, fnxln-granular, chalky matrix





Lime, lt-med brn, fnxln-granular, soft on crush, chalky matrix with soft sticky clumps of chalk

Lime, crm-lt brn, granular, chalky matrix

Lime, lt brn, granular with less chalk, soft on crush

Lime, lt-med brn, fnxln, bedded chalk in part

Lime, crm-lt brn, granular, bedded chalk in part

Shale, black carbonaceous

Lime, crm-lt brn, fnxln, chalk with sticky clumps in part

Shale, lt gray, soft

Lime, crm-lt brn, fnxln, soft on crush, chalky

Lime, lt brn-granish brn, fnxln-granular, slightly fossiliferous, chalk with sticky clumps in part

Lime, lt-med grayish brn-lt gray, fnxln, decreasing chalkiness

Lime, crm-lt brn, fnxln-granular, chalky matrix, soft on crush

Lime, crm-lt brn, mostly granular with bedded chalk

Lime, lt-med brn, fnxln, soft on crush, chalky matrix with bedded chalk

Lime, lt-med brn-gray, fnxln, soft on crush, chalk matrix

**HEEBNER SHALE 3253-1250**

Shale, black carbonaceous, fissile, blocky

Lime, lt-med brn, fnxln, hard on crush

Shale, lime green-grayish green soft forming soft clumps

**TORONTO 3272-1269**

Lime, crm, fnxln, bedded chalk, NS

Lime, crm-lt brn-brn, fnxln

Shale, red wash with soft mud

**LKC 3297-1294**

Lime, crm-lt brn, fnxln, hard on crush, bedded chalk, NS

Lime, lt-med brn with grayish brn near shale boundary, fnxln, slightly fossiliferous

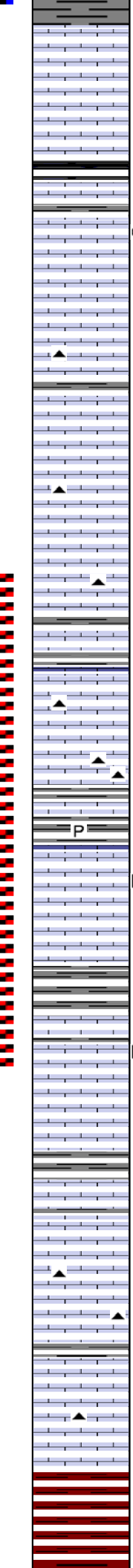
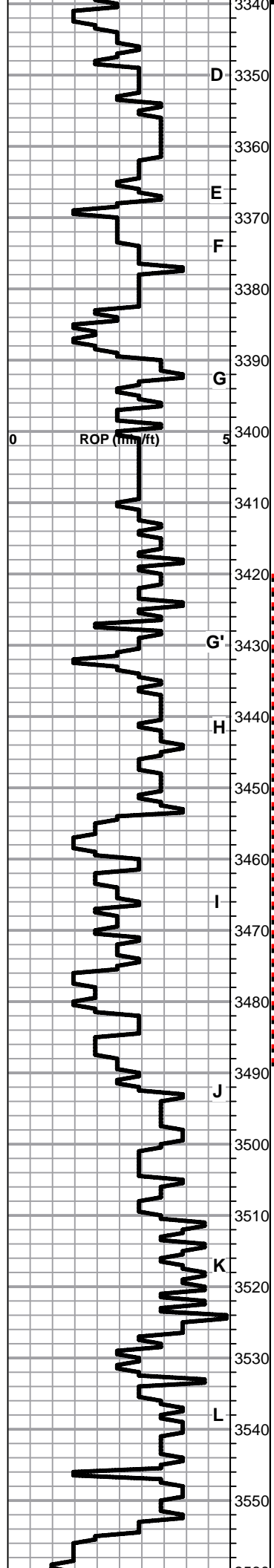
Shale, lt-med gray, soft forming mud clumps

Lime, lt brn, oolitic/oolmoldic with fossil fragments, lt scattered-sat stain, NFO, no odor

Lime, lt brn, fnxln, bedded chalk in part

DST # 1 3286'-3340' "A-C"  
SEE HEADER FOR TEST SUMMARY

ZONE SHOULD BE PERFORATED IN LOG INTERVAL FROM 3322-26, TREATED AND TESTED PRIOR TO ABANDONMENT OF WELL. DST # 1 INDICATED ZONE MAY HAVE PERMEABILITY RESTRICTIONS WHICH MAY RESULT IN LIMITED



Lime, crm-lt brn-lt gray, fnxln, NS

Lime, lt brn, fnxln

Shale, black carbonaceous  
Lime, pale green-lt gray, fnxln

Lime, tan, oolitic, cemented in part, chalky in part, trace of stain, No Odor, NFO

Lime, crm-tan, fnxln, slight chalk, NS

Lime, crm-tan-lt brn, chalky granular-vfxln, NS

Lime, crm-tan, fnxln, bedded chalk in part

Lime, tan-lt brn, fn-vfxln, glasslike appearance, slight bed chalk

Lime, tan-lt brn-lt grayish brn, fn-vfxln, glasslike appearance

Shale, med gray, soft, blocky  
Lime, med-dark brn, fnxln

Lime, tan, fnxln with thin oolitic zone on top of bench, mostly cemented, NS

Lime, tan, fnxln, lot of bedded chalk

Lime, lt brn, crypto xln, glasslike, slight chalk  
Shale, med gray, soft

Lime, tan-lt brn, fnxln, bedded chalk, trace of dead oil, NFO, No Odor, No Live Oil

Lime, tan-lt brn, fn-vfxln, slight chalk

Shale, lt gray, soft

Lime, lt brn, fn-vfxln, slight bedded chalk, traces of gilsonite, NFO, No Odor

Lime, crm-tan vfxln, bedded chalk in part

Shale, med gray, slivers, slightly calcareous in part

Lime, crm-tan-lt brn, fn-vfxln, bed chalk, NS

Lime, crm-tan, fn-vfxln, bedded chalk, NS

Lime, crm-tan-lt brn, fnxln-vfxln, bedded chalk

Lime, crm-lt brn, fn-vfxln

Lime, crm, vfxln, slight bedded chalk

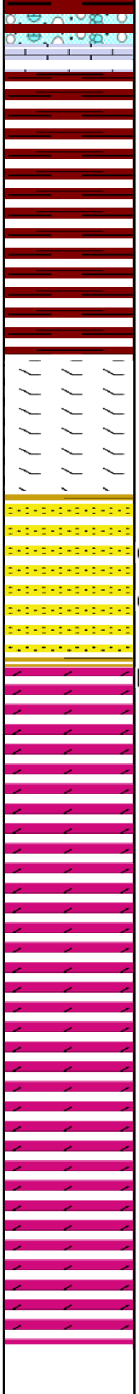
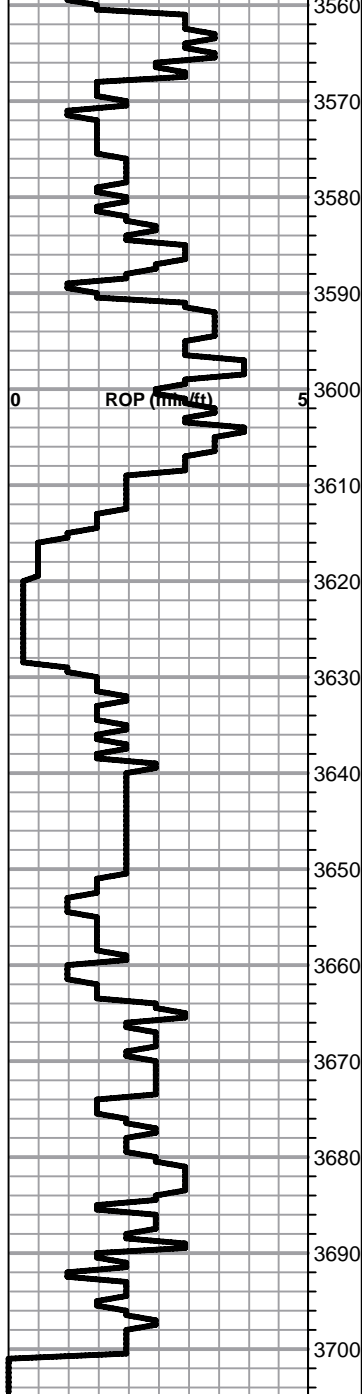
**BKC 3545-1542**

Shale, reddish brn, soft, blocky with lt red wash

ZONE SHOULD BE PERFORATED IN LOG INTERVAL FROM 3370-72, TREATED AND TESTED PRIOR TO ABANDONMENT OF WELL

DST # 2 3420' TO 3490' "H-J" SEE HEADER FOR TEST SUMMARY

H, I and J BENCHES CONDEMNED BY DST # 2



Lime, red shale clastic mix, lt red wash

Shale, lt gray-red, red wash, soft, sticky mud clumps

Shale, reds, brn, forming soft mud

**MARMATON 3596-1593**

Lime, crm-tan, fnxln, hard on crush, few coarse grained ss clusters near base of unit

**CONGLOMERATE SAND 3610-1607**

Sandstone, cemented cap grading into coarse grained mix of quartz sand and recrystallized rhombic dolomite. dark saturation, SFO on break, lt odor

**ARBUCKLE 3628-1625**

Dolomite, ivory-crm, granular, fn-coarse grained, gilsonitic in boundary with base of sand unit. Sand boundary grades into fine grained, sucrosic dolomite with NFO, No Stain, No Odor

Dolomite, crm-tan, fnxln-granular, fnxln, very clean in appearance

Dolomite, crm, fnxln-granular, hard on crush in part, lt chalky wash

Dolomite, crm-tan, fnxln-granular

Dolomite, mostly fnxln, hard on crush, specks of green glauconite, with few quartz grain inclusions

Dolomite, vrm, fnxln-granular with increasing med-coarse grained sucrosic material

Dolomite, crm, fnxln-granular, fn-medxln, with scattered sucrosic

**RTD 3700-1697    LTD 3701-1698**

**DST # 3 3597' TO 3628' SEE HEADER FOR TEST SUMMARY**

**RECOMMEND PERFORATING 1' OF ZONE WITH 2 HOLES IN LOG INTERVAL 3612' TO START. DST # 3 INDICATES ZONE HAS EXCELLENT PRESSURES, VERY GOOD PERMEABILITY AND CARRIES WATER.**

**PAY ZONE IS CONSIDERED TO CONGLOMERATE SAND BASED ON LOCATION AND LITE ODOR OF RECOVERED OIL**

**5 1/2" PRODUCTION CASING WAS RAN WITH BOTTOM STAGE CEMENTING ONLY SINCE SURFACE PIPE WAS SET INTO ANHYDRITE**



# QUALITY OILWELL CEMENTING, INC.

Federal Tax I.D.# 20-2886107

Phone 785-483-2025  
Cell 785-324-1041

Home Office P.O. Box 32 Russell, KS 67665

No. 6327

Date	12-15-12	Sec.	14	Twp.	15	Range	19	County	Ellis	State	KS	On Location		Finish	6:30 AM
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Location *Antonia 2 3/4 S W 10*

Lease	<i>Worth Pfannenstiel Unit</i>		Well No.	<i>1</i>	Owner	To Quality Oilwell Cementing, Inc. You are hereby requested to rent cementing equipment and furnish cementer and helper to assist owner or contractor to do work as listed.
Contractor	<i>D. Scoville #4</i>					
Type Job	<i>Production String</i>					
Hole Size	<i>7 7/8</i>	T.D.	<i>3700</i>	Charge To		<i>Heat Oil</i>
Csg.	<i>5 1/2</i>	Depth	<i>3695</i>	Street		
Tbg. Size		Depth		City		State
Tool		Depth		The above was done to satisfaction and supervision of owner agent or contractor.		
Cement Left in Csg.	<i>21.47</i>	Shoe Joint	<i>21.47</i>	Cement Amount Ordered		<i>180 Com 10% Salt 5% Gel + 500 gal mud flush</i>
Meas Line		Displace	<i>89 3/4 BCL</i>			

**EQUIPMENT**

Pumptrk	<i>5</i>	No.	Cementer	<i>Coig</i>	Common
			Helper		
Bulktrk		No.	Driver	<i>Coig</i>	Poz. Mix
			Driver		Gel.
Bulktrk	<i>1</i>	No.	Driver	<i>Heath</i>	Calcium
			Driver		

**JOB SERVICES & REMARKS**

Remarks:		Hulls
Rat Hole	<i>30SK</i>	Salt
Mouse Hole	<i>155SK</i>	Flowseal
Centralizers		Kol-Seal
Baskets		Mud CLR 48
D/V or Port Collar		CFL-117 or CD110 CAF 38
		Sand
		Handling
		Mileage

*5 1/2 sp @ 3695 3 is @ 3673  
Est Circulation. Pump 500 gal mud 4 ear  
With 10 BCL spacer Plug Retainer mousehole  
Cement 5 1/2 with 135SK - Circ lines  
Displace Plug Plug back @ 2000 ft.  
HCV Release pressure Diff.*

**FLOAT EQUIPMENT**

Guide Shoe	<i>5 1/2</i>
Centralizer	<i>6</i>
Baskets	<i>1</i>
AFU Inserts	
Float Shoe	<i>1</i>
Latch Down	<i>1</i>

Pumptrk Charge	
Mileage	
Tax	
Discount	
Total Charge	

X Signature *[Signature]*



Conservation Division  
Finney State Office Building  
130 S. Market, Rm. 2078  
Wichita, KS 67202-3802



Phone: 316-337-6200  
Fax: 316-337-6211  
<http://kcc.ks.gov/>

Mark Sievers, Chairman  
Thomas E. Wright, Commissioner  
Shari Feist Albrecht, Commissioner

Sam Brownback, Governor

March 13, 2013

Dave Hertel  
Hertel Oil Company LLC  
704 E 12TH ST  
HAYS, KS 67601-3440

Re: ACO1  
API 15-051-26436-00-00  
Werth-Pfannenstiel Unit 1  
SE/4 Sec.14-15S-19W  
Ellis County, Kansas

Dear Production Department:

We are herewith requesting that the Well Completion Form ACO-1 and attached information for the subject well be held confidential for a period of two years.

Should you have any questions or need additional information regarding subject well, please contact our office.

Respectfully,  
Dave Hertel

# QUALITY OILWELL CEMENTING, INC.

Federal Tax I.D.# 20-2886107

Phone 785-483-2025  
Cell 785-324-1041

Home Office P.O. Box 32 Russell, KS 67665

No. 6115

Date	12-9-12	Sec.	14	Twp.	15	Range	19	County	Ellis	State	Ks	On Location		Finish	6:15 PM
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Lease: Werth-Pfannenstiel  
Well No. 1  
Location: Antonino Ks - 35, Winto

Contractor	Discovery	#4	Owner	To Quality Oilwell Cementing, Inc. You are hereby requested to rent cementing equipment and furnish cementer and helper to assist owner or contractor to do work as listed.
Type Job	Surface		Charge To	Hertel oil
Hole Size	12 1/4"	T.D.	1190'	
Csg.	8 5/8"	Depth	1190'	
Tbg. Size		Depth		
Tool		Depth		The above was done to satisfaction and supervision of owner agent or contractor.
Cement Left in Csg.	42'	Shoe Joint	42'	Cement Amount Ordered 450 Com 3 1/2 CC 2 1/2 Gel
Meas Line		Displace	73 BLS	

**EQUIPMENT**

Pumptrk	16	No.	Cementer	Travis	Common	450
			Helper		Poz. Mix	
Bulktrk	12	No.	Driver	Billy	Gel.	9
			Driver		Calcium	16
Bulktrk	pm	No.	Driver	Rick		

**JOB SERVICES & REMARKS**

Remarks:		Hulls	
Rat Hole		Salt	
Mouse Hole		Flowseal	
Centralizers		Kol-Seal	
Baskets		Mud CLR 48	
D/V or Port Collar		CFL-117 or CD110 CAF 38	
Cement did Circulate		Sand	
		Handling	475
		Mileage	

**FLOAT EQUIPMENT**

	Guide Shoe	
	Centralizer	2
	Baskets	2
	AFU Inserts	
	Float Shoe	
	Latch Down	
	1- Baffle plate	
	1- Rubber plug	
	Pumptrk Charge	Long Surface
	Mileage	15

Tax	
Discount	
Total Charge	

X Signature Mike Prock